

What I claim is:

1. A process for naturally recycling protein waste comprising the steps of:
  - a) preparing an enzymatic digest medium and adjusting a pH level of said enzymatic digest medium to an optimal level;
  - b) grinding protein waste and mixing said waste with said enzymatic digest medium to produce a protein solubles mixture comprising protein, fat, and water;
  - c) maintaining said protein solubles mixture at a temperature optimal for enzymatic digestion;
  - d) periodically recirculating said protein solubles mixture to insure complete enzymatic digestion;
  - e) emulsifying said protein solubles mixture to disperse said protein, said fat, and said water to produce emulsified proteins;
  - f) allowing separation of said water into a water layer, removing said water layer, and recycling said water layer in preparing said enzymatic digest;
  - g) mixing said emulsified proteins with a carrier wherein said carrier comprises a high surface area to volume ratio which absorbs moisture from said emulsified proteins and produces a doughlike mixture;
  - h) extruding said doughlike mixture into a plurality of pellet-like pieces;
  - i) evenly drying said plurality of pellet-like pieces;
  - j) sizing said plurality of pellet-like pieces to uniform size and retaining said uniformly sized pellet-like pieces.

2. The process for naturally recycling protein waste as claimed in claim 1 wherein the step of preparing an enzymatic digest medium comprises mixing at least one enzyme, an inedible egg substance, and at least one preservative.
3. The process for naturally recycling protein waste as claimed in claim 2 wherein adjusting said pH level comprising adding phosphoric acid or lactic acid and said optimal level is between about pH 4 and pH 6.
4. The process for naturally recycling protein waste as claimed in claim 1 wherein said enzymatic digest medium comprises about 2 pounds per ton of at least one preservative, about one and one half pounds per ton of at least one enzyme wherein said at least one enzyme comprises protease and keritinase, and about one thousand nine hundred ninety six pounds per ton of inedible egg substance and said optimal level of pH is between about 4 and 6.
5. The process for naturally recycling protein waste as claimed in claim 1 wherein the step of mixing said protein waste with said enzymatic digest medium comprises recirculating said protein solubles mixture through a chopper pump to insure adequate grinding and thorough mixing with said enzymatic digest medium.
6. The process for naturally recycling protein waste as claimed in claim 1 wherein the step of maintaining said protein solubles at an optimal temperature is carried out by a heating element placed in a housing filled with water and surrounding a digester tank containing said protein solubles and said optimal temperature is between about 90 degrees and 110 degrees Fahrenheit.
7. The process for naturally recycling protein waste as claimed in claim 1 wherein said carrier further comprises ground wheat midds, ground corn midds, or soybean meal.

8. The process for naturally recycling protein waste as claimed in claim 1 wherein the step of evenly drying said plurality of pellet-like pieces comprises subjecting said pellet-like pieces to at least one heat zone, at least one cool zone, and alternating airflow.

9. The process for naturally recycling protein waste as claimed in claim 1 wherein the step of sizing said plurality of pellet-like pieces is carried out by moving said pieces through a roller mill for uniform sizing and then using a vibrating screen to retain only said pellet-like pieces of uniform size.

10. The process for naturally recycling protein waste as claimed in claim 1 wherein the step of preparing an enzymatic digest medium comprises mixing at least one enzyme, an inedible egg substance, and at least one preservative and adjusting said pH level to between about 4 and 6 by adding phosphoric acid; the step of grinding and mixing said protein waste and said enzymatic digest medium is carried out by a grinder and recirculation through a chopper pump; and the step of maintaining said protein solubles at an optimal temperature includes using a heating element to provide heat such that said optimal temperature is between about 90 degrees and 110 degrees Fahrenheit.

11. The process for naturally recycling protein waste as claimed in claim 10 wherein the step of drying said plurality of pellet-like pieces comprises heating said pellet-like pieces, cooling said pellet-like pieces, and providing alternating air flow to said pellet-like pieces.

12. A process for naturally recycling protein waste comprising the steps of:

a) preparing an enzymatic digest medium comprising at least one enzyme and adding an acidic solution to achieve and maintain a pH level of between about 4 and 6;

- b) grinding protein waste and mixing said protein waste with said enzymatic digest medium to produce a protein solubles mixture which is recirculated through a chopper pump to insure adequate mixing and grinding;
- c) maintaining said protein solubles mixture at a temperature between about 90 degrees and 110 degrees Fahrenheit and periodically recirculating to insure complete enzymatic digestion;
- d) emulsifying said protein solubles mixture, allowing said mixture to separate into a water layer and emulsified fats and proteins, and removing said water layer to be recycled in the step of preparing said enzymatic digest medium;
- e) mixing said emulsified proteins with a carrier to produce a doughlike mixture;
- f) extruding said doughlike mixture into a plurality of pellet-like pieces; and
- g) evenly drying said pieces by moving said pieces through at least one heat zone and one cool zone.

13. The process for naturally recycling protein waste as claimed in claim 12 further comprising the steps of:

- a) sizing said plurality of pellet-like pieces to uniform size by moving said pieces through a roller mill; and
- b) using a vibrating screen to retain only said pieces of uniform size for packaging.

14. The process for naturally recycling protein waste as claimed in claim 12 wherein said at least one enzyme comprises protease and keritinase and wherein said acidic solution comprises phosphoric acid or lactic acid.

15. The process for naturally recycling protein waste as claimed in claim 12 wherein said step of evenly drying further comprises providing air flow to said pellet-like pieces.

16. The process for naturally recycling protein waste as claimed in claim 12 wherein said step of maintaining and periodically recirculating said protein solubles comprises recirculation for one hour every twelve hours for three to four days.